

Surveillance and Early Detection of SARS

During the winter and spring of 2003, 8437 cases of Severe Acute Respiratory Syndrome (SARS) were diagnosed and 813 deaths were attributed to SARS worldwide. The disease was first found in China and then spread to Hong Kong, Taiwan, Singapore, The Philippines, Viet Nam, Canada, and other countries before it was contained. The United States reported only 8 confirmed cases of SARS and 184 suspected cases that could not be confirmed or ruled out.

As of January 2004, one laboratory confirmed and two suspect SARS cases are currently under investigation in China. All patients are reported to be doing well, and no signs or symptoms of SARS have been reported among contacts to date.

Surveillance is the foundation of preparing for the potential re-emergence of SARS.

Objectives of SARS surveillance in the absence of SARS transmission worldwide:

- Early detection of SARS cases—because of the extremely contagious nature of the disease, a single undetected case could lead to widespread transmission of SARS.
- Rapid identification and evaluation of close contacts of cases.
- Minimize unnecessary lab testing.
- Minimize public concerns about SARS.

Features of SARS that can be used to focus surveillance activities during the period of no transmission worldwide:

- Most patients infected with SARS develop radiographic evidence of pneumonia.
- Most SARS transmission occurs when patients are seriously ill and require hospitalization.
- Most infected patients have identifiable exposure to a known SARS case or a suggestive cluster of SARS-like illness.
- Global travel facilitated the spread of SARS.
- Transmission was variable and differed by country and setting (community vs. healthcare setting).
- Healthcare facilities played a central role in the epidemiology of SARS.

Focus of surveillance efforts

Surveillance efforts should aim to identify patients who require hospitalization for radiographically confirmed pneumonia or acute respiratory distress without identifiable cause AND have one of the following risk factors during the 10 days prior to illness onset:

- Travel to mainland China, Hong Kong, or Taiwan, or close contact with an ill person with history of recent travel to one of these areas.
- Employment in an occupation associated with risk for SARS exposure (e.g., healthcare worker with direct patient contact, worker in lab that contains live SARS-CoV).
- Part of a cluster of cases of atypical pneumonia without an alternative diagnosis.

Detection of "sentinel" cases of SARS in the absence of activity

Healthcare workers should ask all people hospitalized with CXR-confirmed pneumonia the following 3 screening questions:

- Do you have history of travel within 10 days to a previously SARS affected area or close contact with an ill person with a history of travel to such areas?
- Are you employed as a healthcare worker with direct patient contact?
- Do you have close contacts who have been told they have pneumonia?

If the answer to any of the 3 screening questions is "yes", healthcare workers need to:

- Institute droplet precautions.
- Notify the appropriate local or state health department.
- Consider SARS testing if no alternative diagnosis is found within 72 hours.

Due to the recent SARS activity in the Guangdong Province, please be alert for:

- Patients who require hospitalization for radiographically confirmed pneumonia or acute respiratory distress syndrome (ARDS)

AND

- Have a history of travel to Guangdong Province (or close contact with an ill person with a history of recent travel to Guangdong Province) in the 10 days before onset of symptoms.

The following actions should be taken:

- Patients should immediately be placed in appropriate isolation precautions for SARS (i.e., contact and airborne precautions)
- Patients should promptly be reported to the state or local health department
- Patients should promptly be tested for evidence of SARS-CoV infection as part of the diagnostic evaluation
- The health department should identify, evaluate, and monitor relevant contacts of the patient, as indicated. In particular, the health status of household contacts or persons who provided care to symptomatic patients should be assessed.

Public health role in surveillance and early detection of SARS

- Disseminate guidelines to providers on timely recognition, evaluation and reporting of possible SARS.
- Establish a surveillance system.
- Ensure reporting on the local, state and federal level.
- Review individual reports from providers to further assess the likelihood of SARS in persons hospitalized for pneumonia.
 - Identify clusters of pneumonia of unknown etiology.
 - Identify cases raising further index of suspicion for SARS.

Detection and Surveillance Should SARS Re-Emerge

Triggers for accelerated surveillance

- Significant increase in the number of SARS cases in an area.
- Documented or suspected transmission of pneumonia without known epidemiologic links.

Accelerated surveillance may include recommendations to:

- **Increase surveillance activities among public health officials**
 - Disseminate modified surveillance and patient screening guidelines to providers
 - Review reports of potential SARS cases from providers and hospital personnel daily
 - Assure adequate testing is done to rule out SARS
 - Identify new pneumonia clusters that might require special attention
 - Monitor disease trends in local areas
 - Facilitate reporting from hospitals
 - If SARS is in the U.S.—move to active surveillance
- **Screen and monitor everyone in healthcare facilities for fever, cough and shortness of breath, including:**
 - Healthcare workers- daily at the beginning of their shift.
 - Visitors- prior to entry of the facility
 - Inpatients- daily (or as needed)

Advice for Travelers

At this time, CDC and WHO have not issued any alerts or advisories for travel to China. Based on limited data, it would be prudent for travelers to China to avoid visiting live food markets and to avoid direct contact with civets and other wildlife from these markets. Viruses similar to SARS have been found in these animals and in people working with these animals.

Additional resources:

- **Utah Department of Health Epidemiology Website:**
www.health.utah.gov/epi/sars
- **Collection of Specimens and Lab Testing:**
<http://health.utah.gov/epi/sars/lhd/SARSlab121803.pdf>
- **SARS Case Definition:**
<http://health.utah.gov/epi/sars/lhd/SARScasedef121803.pdf>
- **SARS Intake/Investigation Form:**
<http://health.utah.gov/epi/sars/lhd/SARSintakeUT1203.pdf>
- **Centers for Disease Control and Prevention:**
www.cdc.gov/ncidod/sars
- **World Health Organization:**
www.who.int